

# Recombinant human IFN- $\alpha$ 1

Mammalian cell-expressed human interferon alpha 1 (alpha D) with HSA

Cat. code: rcyc-hifna1

<https://www.invivogen.com/human-ifna2b>

For research use only

Version 23A16-NJ

## PRODUCT INFORMATION

### Contents

- 1  $\mu$ g of lyophilized recombinant human IFN- $\alpha$ 1
- Note: This product is sterile filtered prior to lyophilization.
- 1.5 ml endotoxin-free water

### Storage and stability

- Recombinant human IFN- $\alpha$ 1 is shipped at room temperature. Upon receipt it should be immediately stored at -20 °C. Lyophilized product is stable for 6 months at -20 °C.
  - Upon resuspension, prepare aliquots of recombinant human IFN- $\alpha$ 1 and store at -80 °C for 4 months.
- Note: Avoid repeated freeze-thaw cycles.

### Quality control

- Purity:  $\geq$  95% (SDS-PAGE)
- Endotoxin:  $\leq$  1 EU/ $\mu$ g
- The biological activity has been confirmed using HEK-Blue™ IFN- $\alpha$ / $\beta$  cells (see validation data sheet available on our website).
- The units have been determined for each lot using a corresponding calibrated standard.

### Characteristics

- Source: Mammalian; Chinese hamster ovary (CHO) cells
- Molecular mass: 17 -20 kDa (SDS-PAGE)
- Chromosome: 9
- UniProt ID: P01562
- Alternate name: IFN-alpha D
- Formulation: Recombinant human IFN- $\alpha$ 1 was lyophilized from a 0.2  $\mu$ m filtered phosphate buffer solution (pH 7.4) containing 2% human serum albumin (HSA) and 5% saccharose.
- Solubility: 100  $\mu$ g/ml in water

## APPLICATIONS

- Cellular assays (e.g. using HEK-Blue™ IFN- $\alpha$ / $\beta$  cells)
- ELISA.

## PRODUCT DESCRIPTION

Despite being encoded by distinct genes, human IFN- $\alpha$ 1 and human IFN- $\alpha$ 13 display identical protein sequences<sup>1</sup>. Human IFN- $\alpha$ 1 is induced in peripheral blood mononuclear cells (PBMCs) upon incubation with CpG-oligonucleotides and in plasmacytoid dendritic cells upon incubation with CpG-oligonucleotides or imiquimod<sup>2</sup>. Viral infection of PBMCs with herpes simplex virus (HSV), Newcastle disease virus (NDV), and respiratory syncytial virus (RSV) induce high production of IFN- $\alpha$ 1<sup>3</sup>.

This subtype of IFN- $\alpha$  is classified as the weakest ISG inducer<sup>1,4</sup> with the lowest anti-viral activity in vitro against influenza A virus<sup>1</sup> and hepatitis C virus (HCV)<sup>5</sup>. Similar to IFN- $\alpha$ 2 and  $\alpha$ -8 subtypes, human IFN- $\alpha$ 1 expression occurs early post-infection with Sendai virus in vitro, regardless of the viral multiplicity of infection (MOI) and may deliver a 'priming' signal to neighboring cells<sup>6</sup>.

InvivoGen provides a glycosylated recombinant human IFN- $\alpha$ 1 produced in CHO cells. Of note, glycosylation stabilizes proteins against physicochemical instabilities.

1. Moll H.P. et al., 2011. The differential activity of interferon- $\alpha$  subtypes is consistent among distinct target genes and cell types. *Cytokines*, 53:52. 2. Hillyer P. et al., 2012. Expression profiles of human interferon-alpha and interferon-lambda subtypes are ligand- and cell-dependent. *Immunol. Cell. Biol.* 90(8):774. 3. Löseke S. et al., 2003. Differential expression of IFN- $\alpha$  subtypes in human PBMC: evaluation of novel real-time PCR assays. *J. Immunol. Methods*, 276(1-2):207. 4. Kurunganti S. et al., 2014. Production and characterization of thirteen human type-I interferon- $\alpha$  subtypes. *Protein Expr. Purif.* 103: 75. 5. George J. & Mattapallil J.J., 2018. Interferon- $\alpha$  subtypes as an adjunct therapeutic approach for human immunodeficiency virus functional cure. *Front. Immunol.* 9:999. 6. Zaritsky L.A. et al., 2015. Virus multiplicity of infection affects type I interferon subtype induction profiles and interferon-stimulated genes. *J. Virol.* 89:11534.

## METHODS

### Preparation of stock solution (20 $\mu$ g/ml):

1. Add 50  $\mu$ l endotoxin-free water (provided) to 1  $\mu$ g of recombinant hIFN- $\alpha$ 1 and mix gently by pipetting until completely resuspended.
2. Use immediately or prepare aliquots and store at -80 °C for 4 months. Avoid freeze-thaw cycles.
3. Further dilutions can be prepared in the appropriate aqueous buffer, such as cell culture medium containing serum.

## RELATED PRODUCTS

Product	Description	Cat. Code
Anti-hIFN- $\alpha$ -IgG	Neutralizing antibody	mabg-hifna-3
HEK-Blue™ IFN- $\alpha$ / $\beta$ cells	Type I IFN reporter cells	hkb-ifnab
Quanti-Blue™ Detection	Detection reagent	rep-qbs
LumiKine™ Xpress hIFN- $\alpha$ 2.0	Bioluminescent ELISA kit	luex-hifnav2

## TECHNICAL SUPPORT

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